

Application No.: 09/840,008

Attorney Docket No.: SALK2270-4

Filing Date: April 20, 2001

(088802-5211)

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Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously presented) An expression system comprising:
at least one SXR response element operably linked to at least one gene, and
a nuclear receptor which is a member of the steroid/thyroid hormone superfamily and
which responds to xenobiotic compounds and binds to said at least one SXR response element as
a heterodimer with retinoid X receptor (RXR) to activate transcription of said at least one gene;
wherein said at least one SXR response element comprises a direct or inverted repeat
response element comprising at least two half sites RGBNNM separated by a spacer of 0 up to
15 nucleotides

wherein:

R is selected from A or G;

B is selected from G, C, or T;

each N is independently selected from A, T, C, or G; and

M is selected from A or C;

with the proviso that at least 4 nucleotides of said -RGBNNM- sequence are
identical with the nucleotides at corresponding positions of the sequence AGTTCA.

2. (Original) The expression system of claim 1, wherein said nuclear receptor is a
steroid xenobiotic receptor.
3. (Withdrawn) The expression system of claim 1, wherein said nuclear receptor is a
pregnane X receptor.
4. (Previously presented) The expression system of claim 1, wherein said gene
encodes a cytokine, a hormone, a blood component, therapeutic gene, or a toxic protein.

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5. (Previously presented) The expression system of claim 1, wherein said xenobiotic compound is digitoxin, indomethacin, pregnelone-16-carbonitrile (PCN), tamoxifen, ralozifene, vitamin K, nifedipine, a barbituate or a steroid.

6. (Previously presented) An expression system comprising:
at least one SXR response element operably linked to at least one gene, and
an expression vector comprising nucleic acid encoding a receptor which is a member of the steroid/thyroid hormone superfamily and which responds to xenobiotic compounds and binds to said at least one SXR response element as a heterodimer with retinoid X receptor (RXR) to activate transcription of said at least one gene;

wherein said at least one SXR response element comprises a direct or inverted repeat response element comprising at least two half sites RGBNNM separated by a spacer of 0 up to 15 nucleotides

wherein:

R is selected from A or G;

B is selected from G, C, or T;

each N is independently selected from A, T, C, or G; and

M is selected from A or C;

with the proviso that at least 4 nucleotides of said -RGBNNM- sequence are identical with the nucleotides at corresponding positions of the sequence AGTTCA.

7. (Original) The expression system of claim 6, wherein said nucleic acid encodes a steroid xenobiotic receptor.

8. (Withdrawn) The expression system of claim 6, wherein said nucleic acid encodes a pregnane X receptor.

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9. (Original) The expression system of claim 6, wherein said expression vector constitutively expresses said nucleic acid.

10. (Original) The expression system of claim 6, wherein said expression vector inducibly expresses said nucleic acid.

11. (Previously presented) A method for the production of a target protein in a cell, said method comprising administering to a cell at least one xenobiotic compound, wherein said cell contains:

a nucleic acid comprising at least one SXR response element operably linked to at least one gene encoding said target protein, and

a receptor which is a member of the steroid/thyroid hormone superfamily and which responds to xenobiotic compounds and binds to said at least one SXR response element as a heterodimer with retinoid X receptor (RXR) to activate transcription of said at least one gene;

and wherein said at least one SXR response element comprises a direct or inverted repeat response element comprising at least two half sites RGBNNM separated by a spacer of 0 up to 15 nucleotides

wherein:

R is selected from A or G;

B is selected from G, C, or T;

each N is independently selected from A, T, C, or G; and

M is selected from A or C;

with the proviso that at least 4 nucleotides of said -RGBNNM- sequence are identical with the nucleotides at corresponding positions of the sequence AGTTCA.

12. (Original) The method of claim 11, wherein said receptor is a steroid xenobiotic receptor.

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13. (Withdrawn) The method of claim 11, wherein said receptor is a pregnane X receptor.

14. (Original) The method of claim 11, wherein said xenobiotic compound is digitoxin, indomethacin, pregnelone-16-carbonitrile (PCN), tamoxifen, ralozifene, vitamin K, nifedipine, a barbituate or a steroid.

15. (Original) The method of claim 11, wherein said receptor is provided by expression from a nucleic acid construct encoding same.

16. (Previously presented) A method for the production of a target protein in a cell, said method comprising administering to a cell at least one xenobiotic compound and a nucleic acid comprising at least one SXR response element operably linked to at least one gene encoding said target protein,

wherein said cell contains a receptor which is a member of the steroid/thyroid hormone superfamily and which responds to xenobiotic compounds and binds to said at least one SXR response element as a heterodimer with retinoid X receptor (RXR) to activate transcription of said at least one gene;

and wherein said at least one SXR response element comprises a direct or inverted repeat response element comprising at least two half sites RGBNNM separated by a spacer of 0 up to 15 nucleotides

wherein:

R is selected from A or G;

B is selected from G, C, or T;

each N is independently selected from A, T, C, or G; and

M is selected from A or C;

with the proviso that at least 4 nucleotides of said -RGBNNM- sequence are identical with the nucleotides at corresponding positions of the sequence AGTTCA.

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17. (Original) The method of claim 16, wherein said receptor is a steroid xenobiotic receptor.

18. (Withdrawn) The method of claim 16, wherein said receptor is a pregnane X receptor.

19. (Original) The method of claim 16, wherein said xenobiotic compound is digitoxin, indomethacin, pregnelone-16-carbonitrile (PCN), tamoxifen, ralozifene, vitamin K, nifedipine, a barbituate or a steroid.

20. (Original) The method of claim 16, wherein said receptor is provided by expression from a nucleic acid construct encoding same.

21. (Previously presented) A method for the production of a target protein in a cell, said method comprising administering to a cell at least one xenobiotic compound, and a receptor which is a member of the steroid/thyroid hormone superfamily and which responds to xenobiotic compounds and binds to at least one SXR response element as a heterodimer with retinoid X receptor (RXR) to activate transcription of at least one gene operably linked to said at least one SXR response element,

wherein said cell contains a nucleic acid comprising said at least one SXR response element operably linked to at least one gene encoding said target protein;

and wherein said at least one SXR response element comprises a direct or inverted repeat response element comprising at least two half sites RGBNNM separated by a spacer of 0 up to 15 nucleotides

wherein:

R is selected from A or G;

B is selected from G, C, or T;

each N is independently selected from A, T, C, or G; and

M is selected from A or C;

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with the proviso that at least 4 nucleotides of said -RGBNNM- sequence are identical with the nucleotides at corresponding positions of the sequence AGTTCA.

22. (Original) The method of claim 21, wherein said receptor is a steroid xenobiotic receptor.

23. (Withdrawn) The method of claim 21, wherein said receptor is a pregnane X receptor.

24. (Previously presented) A method for the production of a target protein in a cell, said method comprising inducing synthesis in said cell of a receptor which is a member of the steroid/thyroid hormone superfamily and which responds to xenobiotic compounds and binds to at least one SXR response element as a heterodimer with retinoid X receptor (RXR) to activate transcription of at least one gene operably linked to said at least one SXR response element, wherein said cell contains:

an expression vector comprising nucleic acid encoding said receptor operatively associated with an inducible promoter,

a nucleic acid comprising said at least one SXR response element operably linked to at least one gene encoding said target protein, and

at least one xenobiotic compound;

and wherein said at least one SXR response element comprises a direct or inverted repeat response element comprising at least two half sites RGBNNM separated by a spacer of 0 up to 15 nucleotides

wherein:

R is selected from A or G;

B is selected from G, C, or T;

each N is independently selected from A, T, C, or G; and

M is selected from A or C;

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with the proviso that at least 4 nucleotides of said -RGBNNM- sequence are identical with the nucleotides at corresponding positions of the sequence AGTTCA.

25. (Original) The method of claim 24, wherein said receptor is a steroid xenobiotic receptor.

26. (Withdrawn) The method of claim 24, wherein said receptor is a pregnane X receptor.